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(54) **Treatment of herpes infections**

(57) An infusion of tea of conventional beverage strength or greater than beverage strength is used as a topical preparation for the treatment of Herpes simplex and Herpes zoster infections in humans. Application of the infusion to an area of the skin infected with Herpes simplex four to five times per day over a period of five days results in the disappearance of the lesions caused by the infection. The infusion is apparently non-toxic and without undesirable side effects.

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TREATMENT OF HERPES INFECTIONS

The present invention relates to compounds and compositions for use in the treatment of Herpes viruses and their infections, in particular the Herpes simplex virus (HSV) which causes "cold sores" and genital herpes, Herpes Varicella-zoster which causes shingles and human herpes virus 6 (HHV-6).

A compound known to be useful in the treatment of Herpes simplex lesions of the skin, eye and external genitalia is Idoxuridine. A 5% by weight solution of Idoxuridine in dimethyl sulfoxide is used to treat Herpes simplex infections of the skin. The virus responds well to frequent (four times daily) applications if started early and continued for three to four days. However, if treatment is delayed for seven days then it is less effective. Idoxuridine may be used to treat Herpes simplex infections of the eye. A 0.1% by weight solution or a 0.5% by weight ointment is used. Idoxuridine may also be used to treat shingles, but a 40% by weight solution in dimethyl sulfoxide is required.

Idoxuridine has unpleasant side effects such as stinging on application and an effect on the patient's sense of taste. Excessive use of Idoxuridine may cause maceration of the skin. Idoxuridine is toxic when taken internally.

Another compound known to be useful in the treatment of Herpes simplex and Herpes zoster infections is vidarabine. Vidarabine is taken intravenously over at least a five day period. Undesirable side effects include anorexia, nausea, vomiting, diarrhoea; ataxia, dizziness, confusion; decreased haematocrit, white cell count and platelet count.

Acyclovir is a compound known to be useful in the treatment of Herpes simplex infections. Acyclovir is taken

orally, topically or intravenously. Undesirable side effects include rashes, reversible increases in plasma, urea, creatinine and liver-related enzymes, decreases in haematological indices and neurological reactions.

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The above compounds and compositions known to be effective for treating Herpes simplex and Herpes zoster infections are relatively costly to produce and have undesirable side effects.

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Traditional and less effective treatments for cold sores include a mixture of lignocaine and nitromersol; a cream comprising menthol and camphor; a lotion comprising menthol, camphor and benzoin; a lotion comprising menthol, myrrh, benzoin, camphor and alcohol; a lotion comprising povidone-iodine; an ointment comprising diperodon, camphor, zinc oxide, allantoin; a paint comprising povidone-iodine and menthol and tablets comprising L-lysine and zinc oxide.

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The inventor has found that Herpes virus infections can be treated effectively and inexpensively using tea.

Accordingly, in a first aspect, the present invention provides tea for use in the topical treatment of Herpes viral infections.

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The term "tea", for the purpose of the present invention, encompasses fresh, dried and processed plant material, particularly the leaves and young shoots, obtained from plants of the genus Camelia more particularly Camelia sinensis. The tea may be green tea which is unprocessed or black tea which has undergone a so-called "fermentation" process. The tea may also be a partially "fermented" tea such as that known as Oolong tea.

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The tea may be in the form of an aqueous extract, preferably an extract made using hot or boiling water. Alternatively, the tea may be dry and in the form of a powder. Also, the tea may simply be the fresh, dried or processed
5 leaves of tea dampened with water or remaining after extraction with water.

The tea may be extracted with solvents other than water, for example an organic solvent such as alcohol. The solvent
10 may be evaporated off and the extract residue dissolved in another solvent such as water before use.

An infusion of tea may be concentrated by evaporation to provide a concentrated solution for direct application to the
15 skin. The concentrate may be applied as a paint to the areas affected by Herpes infection. Alternatively, the infusion or the concentrate may be applied as an aerosol. If desired, the concentrate may be combined with a cream or an ointment or the infusion may be evaporated or freeze-dried to provide a powder
20 for application to the skin. Dry tea leaves themselves, whether before or after aqueous extraction may be ground to form a powder for application to the skin. If a powder is used then other powder materials such as talc or zinc oxide may be used as carriers for the tea powder.

The tea also may be in the form of a tea bag either before, during or after extraction with water, preferably with hot or boiling water. The inventor has found that a damp tea bag pressed against the area of Herpes infection or squeezed
30 to release a concentrated solution of tea on to the affected area is particularly effective.

Preferably, the tea includes bergamot oil added thereto. The tea in such cases is preferably an Earl Grey tea.

The tea preferably includes one or more of the variety of phenolic compounds found in tea and referred to as "tannin". However, the identity of the component or components providing the antiviral activity presently is
5 unknown.

In a second aspect the invention provides the use of tea in the manufacture of a topical medicament for the treatment of Herpes viral infections.
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In a third aspect the present invention provides a method of treating Herpes viral infections comprising the topical application of tea as hereinbefore defined.

15 In a fourth aspect, the present invention provides a topical composition for the treatment of Herpes viral infections comprising tea, other than an aqueous extract of tea, in a pharmaceutically acceptable vehicle. The vehicle may be a cream, ointment, lotion, paste, dusting-powder, application,
20 collodion, liniment or paint.

The invention is preferably of use in the treatment of Herpes virus infections caused by Herpes simplex, particularly "cold sores" and genital herpes.
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The invention is preferably also of use in the treatment of Herpes virus infections caused by Herpes zoster particularly "shingles" and by human herpes virus 6 (HHV-6).

30 The invention is expected to be of use in treating immunosuppressed patients suffering from Herpes virus infections.

The invention will now be described by way of the
35 following examples:-

EXAMPLE 1 - Preparation of tea infusion.

An infusion of an Earl Grey tea of conventional beverage strength was made by placing a commercially available "Twinings" brand tea bag of Earl Grey tea into a tea cup and then filling the cup with boiling water. The tea bag was allowed to stand in the water for 2 to 4 minutes with occasional stirring. The tea bag was then removed and the resulting infusion used as quickly as possible. In some preparations the infusion was allowed to cool to room temperature before use.

EXAMPLE 2 - Use of tea infusion squeezed from the tea bag to treat Herpes simplex lesions.

A female patient aged 63 suffering from lesions spreading over an area of about 6 cm in diameter caused by Herpes simplex infection was treated using the tea bag resulting from the preparation of the infusion as described in Example 1. The tea bag was squeezed so that a concentrated extract of tea was expelled. Extract was squeezed directly on to the affected areas of the patient's skin. The tea bag itself was rested against the affected areas for 1 to 2 minutes. Afterwards, any tea extract on the skin was allowed to dry naturally. The above tea bag treatment was repeated four or five times daily over a five day period. A freshly prepared tea bag in accordance with Example 1 was used on each occasion. At first the lesions were inflamed and painful, but the pain was relieved within 18 hours after the start of treatment and the infection did not spread further. Within four to five days the lesions crusted over and many resolved themselves. Alleviation of symptoms occurred within three and a half to four days. The lesions did not recur for some months after the above treatment was discontinued.

The lesions of the patient referred to in Example 2 had previously recurred two or three times a year. However, when the lesions recurred after the tea bag treatment they were noted clinically to be less severe and less extensive than before.

EXAMPLE 3 - Use of black tea to treat Herpes simplex lesions

An infusion of tea was made as described in Example 1 except that a commercially available tea bag containing black tea was used instead of Earl Grey. The infusion was allowed to cool and was then applied to the infected area of the patient in Example 2 when suffering from a recurrence of the Herpes simplex infection. The infusion was applied by dabbing it on to the skin with cotton wool. The liquid on the skin was allowed to dry in air. The infusion was retained and then similar applications were made to the affected area four or five times daily. After five days of treatment the infection was cured.

In the above treatment, it was noticed that the pain relief obtained was not so dramatic as in the treatment of Example 2.

EXAMPLE 4 - Use of Earl Grey tea infusion to treat Herpes simplex lesions

The infusion of Example 1 was allowed to cool and then applied to the skin of the patient of Example 2 suffering from a recurrence of the Herpes simplex infection. The application was made by dabbing the liquid on to the skin with cotton wool and allowing the liquid to dry. The infusion used in this example was used to make further applications four or five times daily. After five days of treatment the symptoms of the disease disappeared. Also, the lesions which crusted over resolved themselves.

CLAIMS

1. Tea for use in the topical treatment of Herpes viral infections.

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2. A use as claimed in Claim 1, wherein the tea is green tea.

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3. A use as claimed in Claim 1, wherein the tea is black tea.

4. A use as claimed in Claim 1, wherein the tea is partially fermented tea.

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5. A use as claimed in any one of Claims 1 to 4, wherein the tea is in the form of an aqueous extract.

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6. A use as claimed in any one of Claims 1 to 5, wherein the tea includes bergamot oil.

7. A use as claimed in any one of Claims 1 to 6, wherein the Herpes virus is Herpes simplex.

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8. A use as claimed in any one of Claims 1 to 6 wherein the Herpes virus is Herpes zoster.

9. The use of tea in the manufacture of a topical medicament for the treatment of Herpes viral infections.

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10. A use as claimed in Claim 9, wherein the tea is green tea.

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11. A use as claimed in Claim 10, wherein the tea is black tea.

12. A use as claimed in Claim 10, wherein the tea is partially fermented tea.

13. A use as claimed in any one of Claims 9 to 12, wherein
5 the tea is in the form of an aqueous extract.

14. A use as claimed in any one of Claims 9 to 13, wherein the tea includes bergamot oil.

10 15. A use as claimed in any one of Claims 9 to 14, wherein the Herpes virus is Herpes simplex.

16. A use as claimed in any one of Claims 9 to 14, wherein the Herpes virus is Herpes zoster.

15 17. A method of treating Herpes viral infections comprising the topical application of tea.

18. A method as claimed in Claim 17, wherein the tea is green
20 tea.

19. A method as claimed in Claim 18, wherein the tea is black tea.

25 20. A method as claimed in Claim 18, wherein the tea is partially fermented tea.

21. A method as claimed in any one of Claims 17 to 20, wherein the tea is in the form of an aqueous extract.

30 22. A method as claimed in any one of Claims 17 to 21, wherein the tea includes bergamot oil.

23. A method as claimed in any one of Claims 17 to 22,
35 wherein the Herpes virus is Herpes simplex.

24. A method as claimed in any one of Claims 17 to 22, wherein the Herpes virus is Herpes zoster.

5 25. A topical composition for the treatment of Herpes viral infections comprising tea other than an aqueous extract of tea, in a pharmaceutically acceptable vehicle.

26. A composition as claimed in Claim 25, wherein the tea is green tea.

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27. A composition as claimed in Claim 26, wherein the tea is black tea.

15 28. A composition as claimed in Claim 26, wherein the tea is partially fermented tea.

29. A composition as claimed in any one of Claims 25 to 28, wherein the tea includes bergamot oil.

20 30. A composition as claimed in any one of Claims 25 to 29, wherein the Herpes virus is Herpes simplex.

31. A composition as claimed in any one of claims 25 to 29, wherein the Herpes virus is Herpes zoster.

Patents Act 197710**Examiner's report to the Comptroller under Section 17
(The Search report)**Application number
GB 9419692.0**Relevant Technical Fields**

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(ii) Int Cl (Ed.6) A61K 35/78

Search Examiner
DR C L DAVIESDate of completion of Search
29 NOVEMBER 1995**Databases (see below)**

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE: WPI, CAS ONLINE

Documents considered relevant following a search in respect of Claims :-
1-16; 25-31**Categories of documents**

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
A, E	WO 95/22254 A1 (AMERSHAM) see page 2, lines 12-29; page 3, lines 1-19; page 4, lines 7-17; page 6, lines 5-14; Example 4	1, 9 at least
X	Indian J. Med. RES. (1979), 69(4) pages 542-5	1-5, 7, 9-13, 15

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